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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte RAINER SOMMER

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Appeal 2009-001149
Application 09/897,870
Technology Center 2100

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Decided: December 17, 2009

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Before JOSEPH L. DIXON, HOWARD B. BLANKENSHIP, and
JAY P. LUCAS, *Administrative Patent Judges.*

DIXON, *Administrative Patent Judge.*

DECISION ON APPEAL

The Appellant appeals the rejected claims 1-32 under 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

I. STATEMENT OF THE CASE

The Invention

The invention at issue on appeal relates to a method and device for controlling a run of a program executable on at least one microprocessor of a microcontroller (Spec. 1).

The Illustrative Claim

1.   A method for controlling a run of a program executable on at least one microprocessor of a microcontroller, comprising the steps of:

reading in information regarding hardware of the microcontroller from at least one information register of the microcontroller; and

actuating at least one switch via which the program run is controlled as a function of the information read in;

wherein program execution only depends on information in the at least one information register of the microcontroller, which is special for each microcontroller step, without other external or operator related influences.

The References

The Examiner relied upon the following prior art as evidence in support of rejections:

| Titherley | US 4,489,414 | Dec. 18, 1984 |
| Simar | US 6,182,203 B1 | Jan. 30, 2001 |

Tom R. Halfhill, *Transforming the PC: Plug and Play*, BYTE (Sept. 1994), available at http://www.byte.com/art/9409/sec7/art1.htm (last visited Sept. 12, 2006) (hereinafter "Halfhill").

Microsoft Corp. and Intel Corp., *Plug and Play ISA Specification, Vol. 1.0a*, (May 5, 1994) (hereinafter "PnPISA").

The Rejections

Claims 1-4, 6-8, 10-14, and 16-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Titherley, PnPISA, and Halfhill.

Claims 5, 9, and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Titherley, PnPISA, and Simar.

II. ISSUES

Has the Appellant shown that the Examiner erred in setting forth a sufficient initial showing of obviousness of the claimed invention in rejecting claim 1 as being unpatentable over the combination of Titherley, PnPISA, and Halfhill? In particular, the issue turns on: 1) Whether there is a proper motivation to combine the Titherley, PnPISA, and Halfhill references; 2) Whether Titherley teaches away from the combination of Titherley, PnPISA, and Halfhill; 3) When one skilled in the art considers the prior art

references in their entirety, whether the claimed invention is obvious over the combination of Titherley, PnPISA, and Halfhill; and 4) Whether one skilled in the art would be motivated to combine the teachings of Titherley, PnPISA, and Halfhill without employing impermissible hindsight or subjective "obvious to try" standard.

III. PRINCIPLES OF LAW

Prima Facie Case of Unpatentability

The allocation of burden requires that the United States Patent and Trademark Office (USPTO) produce the factual basis for its rejection of an application under 35 U.S.C. §§ 102 and 103. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d 1011, 1016 (CCPA 1967)). The Examiner bears the initial burden of presenting a prima facie case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Appellants have the opportunity on appeal to the Board of Appeals and Interferences (BPAI) to demonstrate error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006).

Scope of Claim

The claim construction analysis begins with the words of the claim. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Absent an express intent to impart a novel meaning to a claim term, the words take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Brookhill-Wilk 1, LLC., v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 (Fed. Cir. 2003) (internal citations omitted).

Obviousness

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any the differences between the claimed subject matter and the prior art; and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

In determining obviousness, the Supreme Court stated:

> Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

The Court reaffirmed the principle based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 416. The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.* at 417.

IV. FINDINGS OF FACT

The following findings of fact (FFs) are supported by a preponderance of the evidence.

1.   Titherley discloses a microcontroller with a microprocessor to test a plurality of computer peripherals:

> The computer is a portable microprocessor system provided with plug-in modules containing the software as firmware to

define the test and exercising routines required for different peripheral devices. The software defines different peripheral connector configurations applicable to the different peripheral devices concerned and also different key functions for operator control of the test and exercising routines.

(Titherley, Abstract.)

2.   Halfhill discloses that PnP will automatically configure computer peripherals without user's intervention:

PnP will bring automatic, software-driven configuration to almost every I/O bus and part on a PC, including ISA, EISA, PCI, VL-Bus, PCMCIA, SCSI, Micro Channel Architecture, IDE, Access.bus, P1394, parallel ports, RS-232 serial ports, and SVGA monitors. PnP will also configure hard-wired motherboard devices in your system, such as the keyboard, mouse, joystick, and display controllers. No more jumpers, no more DIP switches, no more messing with configuration files . . . ."

(Halfhill, at 3-4.)

Dynamic configuration is perhaps the most exciting benefit of full PnP integration. Until recently, this wasn't a factor, because few I/O buses allowed hot-plugging. But newer buses like PCMCIA and P1394 actually encourage you to add or remove devices while the computer is running. To cope with this, the operating system must juggle system resources and device drivers without unduly pestering you. Moreover, the operating system should be able to pass messages about dynamic events to applications, which in turn should be capable of responding appropriately.

(*Id.* at 10.)

3.   PnPISA discloses a Plug and Play standard register stored the

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PnP command for configuring the peripherals (pp. 14-15, Fig. 6, p. 49, Fig. A-1).

V. ANALYSIS

"[T]he examiner bears the initial burden on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant." *In re Oetiker*, 977 F.2d at 1445.

The Examiner set forth a detailed explanation of a prima facie case of unpatentability in the Examiner's Answer. Therefore, we look to Appellant's Briefs to show error in the proffered prima facie case.

The Appellant argued claims 1-4, 6-8, 10-14, and 16-32 together as a group (App. Br. 10). Therefore, we select independent claim 1 as the representative claim for this group, and we will address the Appellant's arguments with respect thereto. *See* 37 C.F.R. § 41.37(c)(vii).

35 U.S.C. § 103(a)

With respect to claim 1, the Appellant contends that the combination of Titherley, PnPISA, and Halfhill fails to provide a "valid motivation to combine" because "'Titherley' reference is directed to testing computer peripherals with portable test equipment. At any one time, the portable test equipment is only attached to one peripheral under test, or at most a plurality of <u>serially</u> attached devices," and in contrast, PnP is "to arbitrate <u>simultaneous</u> requests from a plurality of <u>parallel</u> devices." (App. Br. 11; Reply Br. 3.)

We disagree with the Appellant's contention.

First, we find that the intention of Titherley is to test a plurality of computer peripherals with the test routines stored in the plug-in module (FF 1). Moreover, the testing process of Titherley needs the manual intervention by the user because of "different peripheral connector configurations applicable to the different peripheral devices" (FF 1). We further find that PnP can automatically configure a plurality of computer peripherals regardless how the peripherals are connected, and configure them on the fly (FF 2), rather than the Appellant's characterization of PnP only to arbitrate simultaneous requests from a plurality of parallel devices. We, finally, conclude that incorporating PnP technology into the testing equipment of Titherley would improve the efficiency of the testing equipment because the testing process would be automatic for different computer peripherals by utilizing the automatic configuration feature of PnP.

The Appellant further contends that "there would also be no motivation to modify the 'Titherley' reference with either the 'Plug and Play' or the 'Halfhill' references because such a modification would not actually even provide any benefit to a user of the portable equipment of the 'Titherley' reference." (App. Br. 13.) Because the device intended to be tested by Titherley is not a PC, nor is it a plug-and play peripheral, the modification to combine Titherley with PnP or Halfhill would not be desirable. (App. Br. 13; Reply Br. 5-6.)

We disagree with the Appellant's contention. The Supreme Court noted that although the teaching, suggestion, motivation test "captured a helpful insight," an obviousness analysis "need not seek out precise

teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418. As discussed *supra*, incorporating PnP technology into the testing device of Titherley would provide benefits to a user such as automatic testing different computer peripherals. The knowledge that utilizing PnP technology for automatically configuring different peripherals was a desirable and efficient way to configure the peripherals to be tested and the microcontroller would have been within the skill in the art, as evidenced by Titherley, PnPISA, and Halfhill. Furthermore, one of ordinary skill in the art is also a person of ordinary creativity, not an automaton. *KSR*, 550 U.S. at 421. Therefore, it would have been obvious at the time of the invention to use the prior art PnP technology taught by PnPISA or Halfhill in the testing microcontroller of Titherley. This combination would predictably automate the testing process of Titherley by automatically configuring the peripherals and the testing device, and automatically invoking a testing routine for a peripheral to be tested, a result that PnPISA and Halfhill teach to be desirable. Further, this appears to be no more than the predictable use of one known prior art element (*i.e.,* PnP technology such as either PnPISA or Halhill) for another (*e.g.,* the testing equipment of Titherley) in order to automatically test a plurality of computer peripherals. In our view, the combination of familiar elements, for example, the microcontroller of Titherley combined with the well known PnP technology, is nothing more than the "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

The Appellant further contends that "one skilled in the art would not be motivated to modify the 'Titherley' reference to apply plug-and-play functionality because the 'Titherley' reference in fact teaches away from this combination." (App. Br. 12.) "Thus, the portable test equipment of the 'Titherley' reference, if modified by the 'Plug and Play' reference, would greatly increase in complexity and not function for its intended use as a portable diagnostic tool." (*Id.* at 13.)

We disagree with the Appellant's contention. We find that the teaching of the use of PnP technology is simply one way of automatically configuring computer peripherals, and the technology is well known to be utilized in either general computers or in portable devices such as portable computers (FF 2). We also find that the PnP technology simplifies the process of initializing, identifying, and configuring the peripherals by automatically dynamic configuration (FF 2). We conclude that PnP technology could be coded in the plug-in module or stored in the memory of the microcontroller of Titherley (FF 3) without affecting the portability of testing device of Titherley. "The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed . . . ." *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). We do not find teachings in the disclosure of either Titherley or PnPISA or Halfhill that criticize, discredit, or otherwise discourage the solution claimed, i.e., automatic execution of a program "without other external or operator related influences." We, thus, conclude that the PnP technology of PnPISA or Halfhill, particularly automatically

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configuring the peripherals, is not contradictory or teaching away with the
portable testing device of Titherley.

The Appellant further contends that in reviewing Titherley in its
entirety,

> it would at least be overly burdensome to modify all of the devices
> that the "Titherley" reference is intended to test to be plug-and-play
> enabled. For evidence of the incredible difficulty of such a task, the
> Office is directed to the "Halfhill" reference, which discusses this at
> length. The "Halfhill" reference[] states [at] page 1, for example,
> *"And although Plug and Play does a remarkable job of making PCs*
> *friendlier while maintaining compatibility with existing hardware, it*
> *also requires that you eventually replace almost all that hardware."*
> In the Advisory Action (at the continuation of 11), the Office asserts
> that this reference has been taken out of context and that the many
> advantages of plug-and-play far outweigh the stipulation that you
> must eventually replace old, obsolete hardware, however Applicants
> disagree. Within the context of the "Titherley" reference, this
> requirement to replace all hardware would be burdensome, as
> conceded by the Office in the Advisory Action (at the continuation of
> 11), and would not provide any benefit because the device of the
> "Titherley" reference is not a PC and does not test plug-and-play
> peripherals. Consequently, one of ordinary skill in the art would be
> dissuaded from modifying the "Titherley" reference.

(App. Br. 14; *see also* Reply Br. 6.)

We disagree with the Appellant's contentions. We find that the
Appellant's analysis of replacing all hardware of Titherley for utilizing PnP
technology to be a rigid, bodily incorporation of PnPISA or Halfhill with
Titherley. "[I]f a technique has been used to improve one device, and a
person of ordinary skill in the art would recognize that it would improve
similar devices in the same way, using the technique is obvious unless its
actual application is beyond his or her skill." *KSR*, 550 U.S. at 417. Here,

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the PnP technique of PnPISA and Halfhill were well known and widely used to automate configuration of computer peripherals and allocation of the system resources (FF 2-3). One of ordinary skill in the art would have recognized that PnP technology would improve the similar system of Titherley in the same or similar way. It is our view that the combination of either PnPISA or Halfhill with Titherley is "a design step well within the grasp of a person of ordinary skill in the relevant art" and the benefit of doing so would be obvious. *KSR,* 550 U.S. at 427. The Appellant has not shown that employing PnP technology in the microcontroller of Titherley was uniquely challenging or difficult for one of ordinary skill in the art or represented an unobvious step over the prior art.

The Appellant also contends that the Examiner employs a subjective "obvious to try" standard to combine the references and thus, "does not reflect the proper evidence to support an obviousness rejection based on the references relied upon" (App. Br. 15); and that "the Office Actions to date offer no evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding." (*Id.* at 16.)

We disagree with the Appellant's contentions. When there is motivation

> to solve a problem and there are a finite number of identified predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR, 550 U.S. at 421.

This reasoning is applicable here to evaluate the "obvious to try" standard used, as alleged by the Appellant. To simplify the testing process of Titherley, the limited choices are either utilizing PnP technology to automate the testing process or designing a specific program for the device automation. We find these known options would have been well within the technical grasp of a person of ordinary skill, and in fact, widely used. A skilled artisan would have had reason to try these technologies with the reasonable expectation that at least one would be successful. Thus, utilizing a program stored in a register for automatically controlling the operation of a microcontroller was not "a product of innovation but [rather the result] of ordinary skill and common sense." Finally, the Appellant has not shown that employing PnP technology in the portable testing microcontroller was uniquely challenging or difficult for one of ordinary skill in the art or represented an unobvious step over the prior art.

Therefore, we conclude that the claimed invention is not patentable as it would have been obvious over the combination of Titherley, PnPISA, and Halfhill.

To determine whether there was an apparent reason to combine the known elements in the way,

> [o]ften it will be necessary . . . to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and to the background knowledge possessed by a person having ordinary skill in the art . . . . To facilitate review, this analysis should be made explicit. . . . [But it] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can [consider] the inferences and creative steps that a person of ordinary skill in the art

would employ.

KSR, 550 U.S. at 418 (citation omitted).

Here, automatically configuring the computer peripherals was well known and widely used at the time of the invention, as taught by PnPISA and Halfhill. A person of ordinary skill in the art who would simplify the testing process of computer peripherals for automatically and appropriately configuring and allocating the system resources would have obviously employed the known PnP technology. Thus, we find that the Examiner's obviousness rejection was not based on impermissible hindsight, rather based on "the inferences and creative steps a person of ordinary skill in the art would employ." (*Id.*)

Accordingly, we sustain the Examiner's obviousness rejection of independent claim 1. We also sustain the Examiner's obviousness rejections of independent claims 6, 10, and 32, which have not been separately argued. Dependent claims 2-4, 7-8, 11-14, and 16-31 fall with the corresponding base claims. 37 C.F.R. § 41.37(c)(1)(vii). *See also In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987).

With respect to claims 5, 9, and 15, the Appellant only contends that "the third level 'Simar' reference does not cure and is not asserted to cure the critical deficiencies of the primary and secondary references as explained above." (App. Br. 17).

Since we sustain the Examiner's obviousness rejection of independent claims, we also sustain the obviousness rejection of dependent claims 5, 9, and 15, which have not been separately argued. 37 C.F.R. § 41.37(c)(1)(vii). *See also In re Nielson*, 816 F.2d at 1572.

VI. CONCLUSION

Based on the administrative record before us, the Appellant has not shown that the Examiner erred in determining that the combination of Titherley, PnPISA, and Halfhill renders the claimed invention obvious.

VII. DECISION

We affirm the rejection of claims 1-32 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

<u>AFFIRMED</u>

msc

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